VORTEX VALVES

The Vortex Valve from Contech® is an exceptional solution to designer/engineers looking to precisely control the discharge flow rate from their drainage, detention or infiltration systems. The Vortex Valve is a device for controlling surface stormwater flow by hydraulic effect without requiring moving parts.

How Does it Work?

The design of the Vortex Valve produces a unique head/discharge relationship. The device self activates by utilizing the upstream hydraulic head. The unit consists of an intake, a volute and an outlet. Flow is directed tangentially into the volute to form a vortex that reduces the design peak discharge flow rate from the Vortex Valve far below an equivalent diameter simple orifice.

During low flow conditions, water entering through the inlet of the Vortex Valve passes through the volute section of the valve with negligible pressure drop.

During high flow conditions, a vortex flow pattern develops within the device creating an air filled core. This phenomenon restricts and throttles flow through the device, creating a back pressure in the device immediately upstream of its discharge.

During high flow rates, a Vortex Valve with a relatively large outlet opening performs similarly to a conventional orifice with a much smaller outlet opening; however, debris that might clog a smaller orifice is able to pass through the Vortex Valve because of the relatively larger flow path opening.

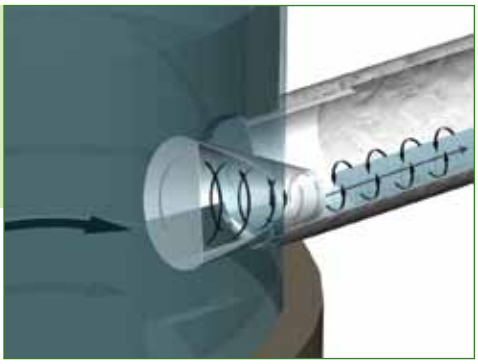
Applications

The Vortex Valve flow control can be used wherever there is a need to limit the rate of flow of surface stormwater within a drainage system implementing Sustainable Urban Drainage System (SUDS) Source Control Schemes and design tenets. Typical applications include:

- Traditional detention/storage systems
- Media filtration systems
- Excess flows from soakaways/infiltration systems
- Wetlands, Ponds and Swales
- Coalescing plate oil water separators

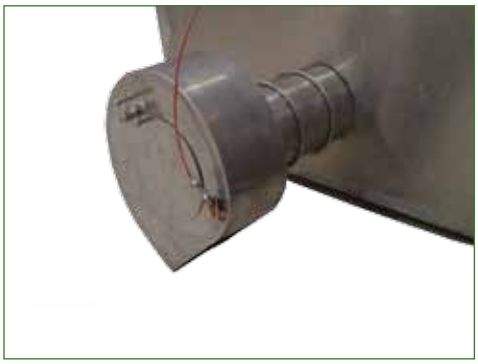
Benefits

- **Precise flow control**
- **No moving parts or power requirements**
- **Self activating**
- **Large flow path open area**
- **Clog resistant, reduces risk of blockage compared to orifice**
- **Hydraulically tested**
- **Integral bypass door allowing access for jetting or cleaning**
- **Corrosion resistant stainless steel construction**



Fluidic-Cone Model Vortex Valve — **typical for controlling large flows**

Fluidic-Amp Model Vortex Valve — **typical for controlling small flows**



Vortex Valve with Pivoting Bypass Door — **easy maintenance from the surface**

Flow Control for Surface Stormwater Drainage and Storage Systems

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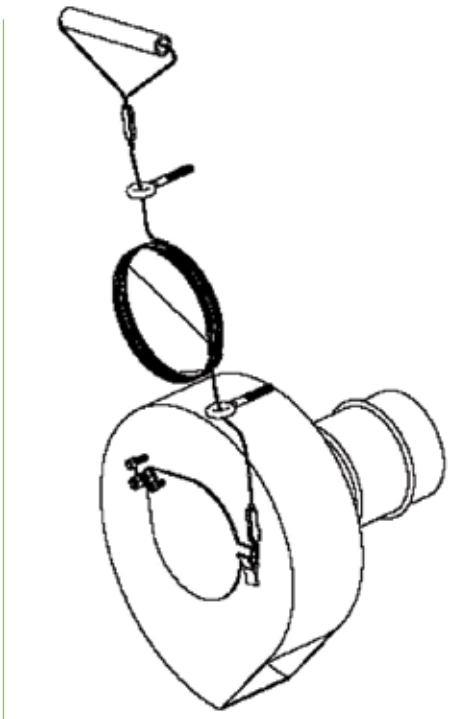
VORTEX VALVES

Pivoting Bypass Door

The Vortex Valve flow control can be fitted with an integral pivoting bypass door mounted on the front face of the unit. If a blockage occurs it is likely to occur on the intake of a flow control. The bypass door is fitted with a stainless steel wire rope that can be pulled from ground level, the door opens exposing a large aperture on the front plate of the unit allowing the system to be drained of water. Once the water level in the housing structure, which is typically a round manhole, subsides, the blockage can be easy accessed and cleared.



Pivoting Bypass Door

Types of Vortex Valves & Design Flow Control Rates

The Fluidic-Amp and Fluidic-Cone Vortex Valves are available to control flow ranges from 0 to 4.23 cfs (0 to 120 L/s) from driving design head ranges of 0 to10 ft (0 to 3 m) in height/depth. The Fluidic-Amp Valve is best for low design discharge flow rate control applications and the Fluidic-Cone Vortex valve is better suited for controlling higher rate discharges. Several economical sleeve, plate or flange attachment options are available for each of these valves to provide the easiest possible installation for specific site.

Fluidic-Amp Vortex Valve

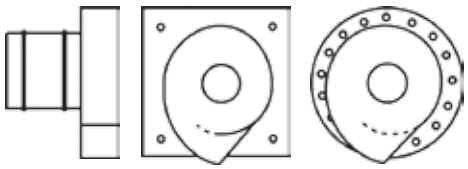
The design of the Fluidic-Amp Vortex Valve is best suited to meet the low flow rate control requirements associated with smaller catchment/ drainage areas: peak design discharge rates of 0 to 1.8 cfs (0 to 50 L/s) produced by design heads from 0 to 5.2 ft (0 to 1.6 m) in height/depth.

This valve has a flow path opening larger than the standard equivalent orifice. Typically these valves are configured for horizontal discharges from a manhole structure having a sump/catch pit below the outlet pipe invert.

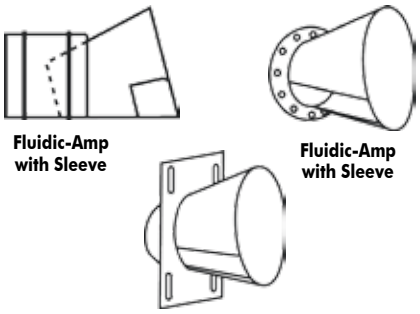
Fluidic-Cone Vortex Valve

The Fluidic-Cone Vortex Valves are generally used for larger surface stormwater design flow control applications. The Fluidic-Cone Valves are best applied to control design flow rates ranging from 0 to 4.23 cfs (0 to 120- L/s) from driving design heads of 0 to 10 ft (0 to 3 m) in height/depth.

The Fluidic-Cones have similar head/discharge curve characteristics to the Fluidic-Amp Valve.



Fluidic-Amp with Sleeve | Fluidic-Amp with Sleeve | Fluidic-Amp with Flange



Fluidic-Amp with Sleeve | Fluidic-Amp with Sleeve | Fluidic-Amp with Sleeve

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